



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/811,605

03/20/2001

Shunji Baba

1614.1142

9323

21171

7590

10/03/2003

STAAS & HALSEY LLP  
SUITE 700  
1201 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/811,605

Applicant(s)

BABA ET AL.

Examiner

Brian K Talbot

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,6,7 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,7,13-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 1762

1. The request for reconsideration filed 7/23/03 has been considered and entered. Claims 1,3,6,7, and 13-24 remain in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2).

Takamori (6,319,317 B1) teaches coating a film on a wafer by applying a resin to the center of the wafer, spinning the wafer to disperse the resin to uniformly coating the wafer. A sensor (105) connected to a controller (110) monitors the spreading of the resin and controls either the speed of the spinning and/or amount of resin applied to produce the desired coating.

Takamori (6,319,317 B1) fails to teach this process on a printed wiring board and not a semiconductor wafer.

Konishi et al. (6,491,452 B2) teaches a similar process where centrifugal forces are utilized to form a uniform coating on a circular substrate. Konishi et al. (6,491,452 B2) further teaches that the substrate is a semiconductor wafer but is not limited as such and can include other substrates such as printed boards.

Therefore, it would have been obvious at the time the invention was made for one skilled in the art to have had a reasonable expectation of achieving similar success with coating a printed

Art Unit: 1762

wiring board by the process of Takamori (6,319,317 B1) instead of a wafer as evidenced by Konishi et al. (6,491,452 B2).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2).

Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2) fails to teach the “measuring” device being of a fluorescent type.

It is the Examiner’s position that the use of fluorescence is commonplace in the art of “measuring/monitoring” a coating and hence, it would have been within the skill of one practicing in the art to have utilized any well know measuring/monitoring technique such as fluorescence to obtain the desired results.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2) further in combination with Nakasu et al. (6,213,356 B1).

Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2) fails to teaching measuring/monitoring the drop prior to contact with the substrate.

Nakasu et al. (6,213,356 B1) depicts monitoring a dispensed droplet of coating material by a sensor (25) prior to contacting the substrate or monitoring the residual material on the nozzle.

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Takamori (6,319,317 B1) in combination with Konishi et al.

Art Unit: 1762

(6,491,452 B2) process by incorporating a measuring/monitoring device to measure the droplet prior to contact with the substrate as evidenced by Nakasu et al. (6,213,356 B1) with the expectation of achieving similar results, i.e. a more controlled deposition of the coating material.

With respect to changing the distance of the nozzle from the substrate or to monitoring the nozzle's tip, it is the Examiner's position that these differences are conventional in the art as well as being commonplace. The distance from the substrate is arbitrary and effects the spread of coating material. The art teaches monitoring both the droplet and the coating material dispensed and it is the Examiner's position that one skilled in the art would have been suggested that monitoring the nozzle tip could be done to avoid clogging or unnecessary deposition.

Claims 13-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2) further in combination with Nakasu et al. (6,213,356 B1), Smith et al. (5,377,961) or Yost et al. (5,855,323).

Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2) fail to teach forming a solder ball at the tip of a nozzle prior to being detached to a substrate.

Nakasusu et al. (6,213,356 B1), Smith et al. (5,377,961) or Yost et al. (5,855,323) all teach solder ball formation prior to application to a substrate.

Therefore, it would have been obvious at the time the invention was made to have modified Takamori (6,319,317 B1) in combination with Konishi et al. (6,491,452 B2) process by forming a solder ball at the nozzle tip prior to deposition as evidenced by Nakasu et al. (6,213,356 B1), Smith et al. (5,377,961) or Yost et al. (5,855,323) with the expectation of achieving similar results.

***Response to Amendment***

4. Applicant's arguments filed 7/23/03 have been fully considered but they are not persuasive.

Applicant is correct in the assumption that Smith and Yost references are relied upon for teaching solder ball formation at the nozzle end prior to being dispensed.

Applicant argued that the Takamori reference teaches monitoring "spreading state" and not surface area.

The Examiner disagrees. Takamori teaches monitoring the spreading of the coating which includes the surface area.

Applicant argued that Nakasu teaches monitoring the presence of a drop and not the external appearance.


The Examiner disagrees. Nakasu monitoring of the drop would be inclusive of measuring the "appearance" contrary to Applicant's arguments.

Art Unit: 1762

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K Talbot whose telephone number is (703) 305-3775. The examiner can normally be reached on Tuesday-Friday 6AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-6078 for regular communications and (703) 872-9765 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3775.

  
Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT  
October 1, 2003